CMS Week Summary

- **Unless an explicit delay is requested, STMicroelectronics will begin delivering TOB sensors in 2002 at a rate of about 1,500 per quarter.**
  - **Priority is being given to Fermilab due to previously voiced Run IIb concerns.**
  - **Most of the sensors will be sent by CERN directly to Fermilab following visual inspection and database logging.**
  - **Storage capacity at SiDet will eventually become an issue.**
- **Some commercial hybrids will be available in November. We've been asked to assemble 7 OB modules as part of the M200 exercise.**
- **Assuming no further hybrid iterations we should start to see production quantities around June of next year. Fully assembled frames should be available prior to that time.**
- **CMS has a serious funding shortfall, which may have some impact on the installation schedule.**

TOB Milestone Activities

- We've been asked to assemble 7 TOB modules as part of the M200 exercise.
  - To date 9 have been made in Bari, 4 in Perugia, and 2 at CERN
- I've received 14 sensors from Bari and expect to receive frames and additional gantry tools shortly.
- KSU will probe some of the 14 sensors.
- Hybrids will not be available until ~mid-November.
- We need to make several modifications to the gantry supply and assembly plates for the exercise.
- Aachen will give us an ARCS systems at next week's Tracker Week.
- We'll need a bonding fixture for the 8090.

Fermilab Gantry Status

Updated slides from the September Gantry group meeting.

Bill Kahl
Lenny Spiegel
Mike Herren
Irina Sirotenko
Chuck Grimm
Ken Schultz
et al.

Fermi Gantry Summary

- **The basic assembly was completed last July.**
- **Since that time we have learned how to use the Pattern Recognition, adapted some of the CERN MMI code, and done some calibration studies and exercises with the glue box.**
- **We can recognize, lift, and move sensors and apply epoxy using the syringe but have not yet combined the steps.**
- **We are modifying versions 1 and 2 of the supply and assembly plates to account for the recently designed sensor transfer plate and hybrid fixtures.**
- **CERN has provided a pair of dummy sensors; Bari has provided 14 real sensors and is sending frames and the missing tools. In November we should receive bonded and tested hybrids from CERN.**

Fermilab Gantry Status

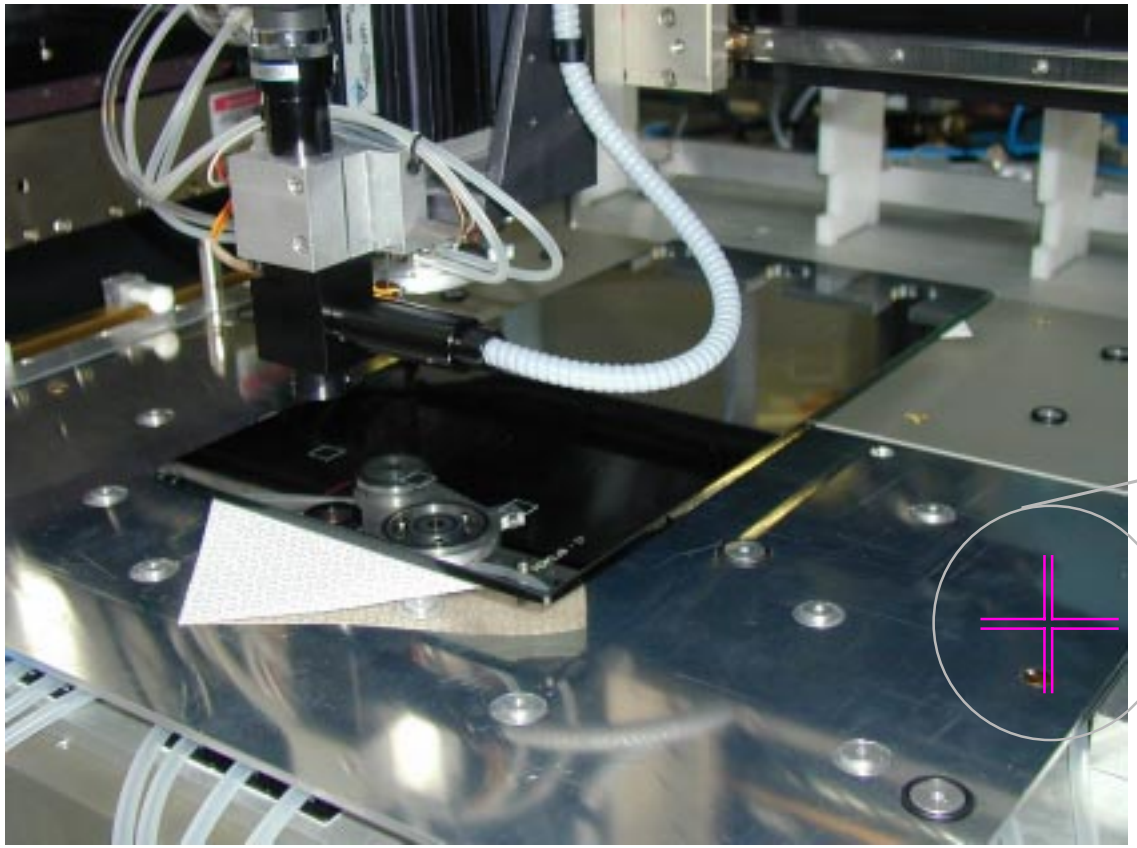
Our gantry

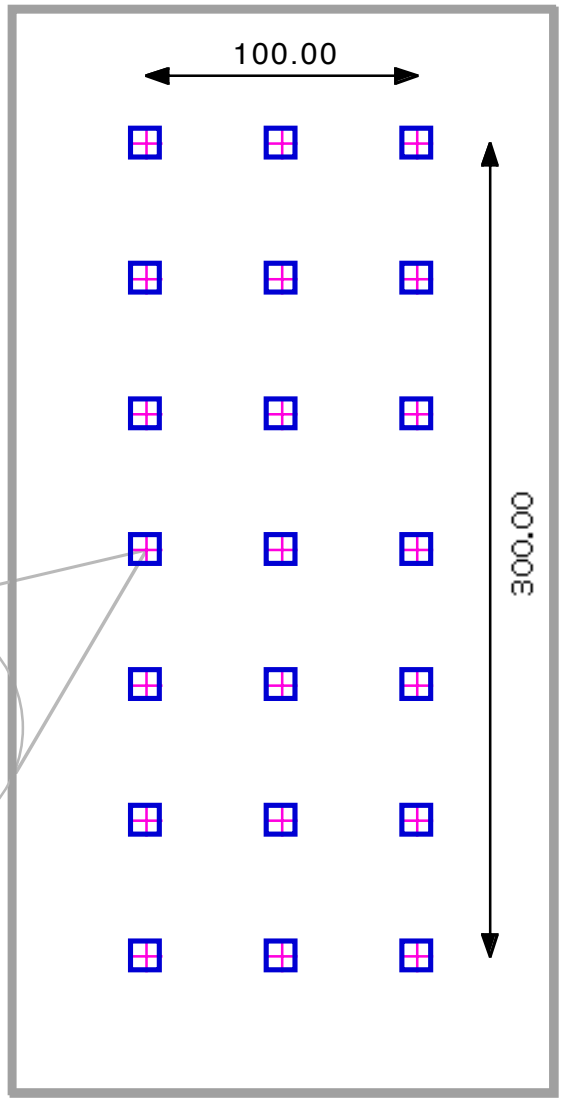
We need to make these modifications.

CERN gantry

We are now able to use the glue box in addition to the pick and place too.

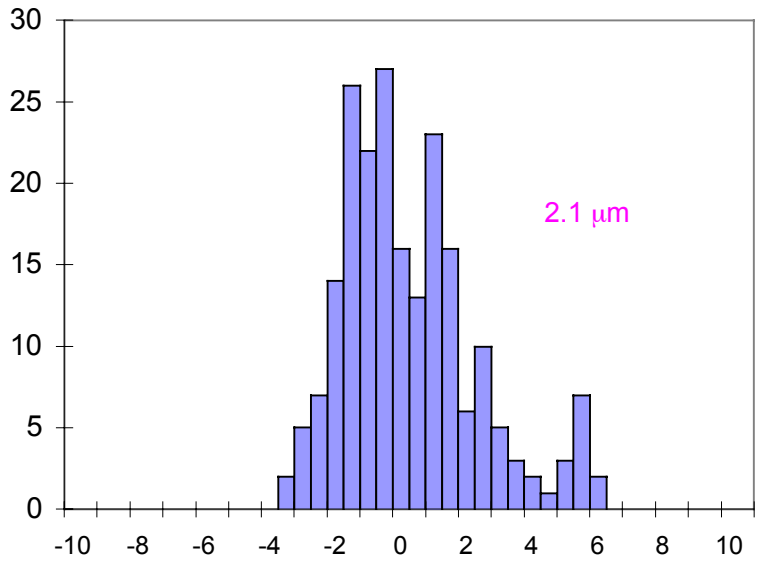
Calibration Studies



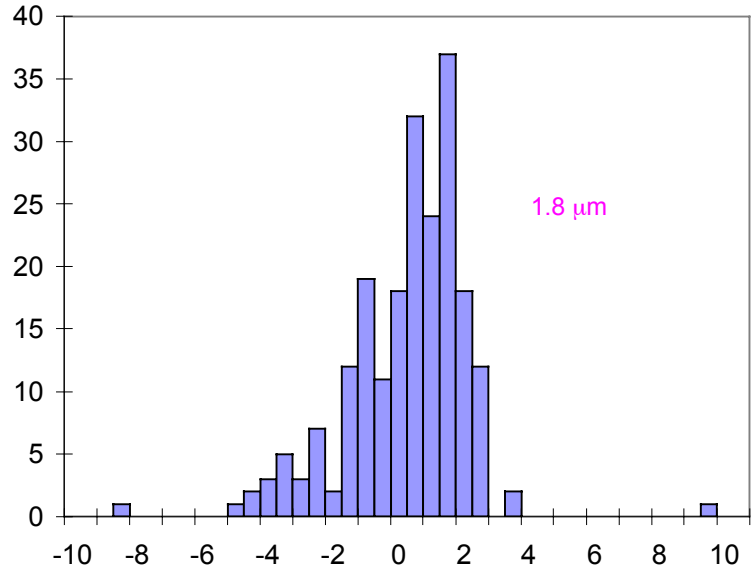


50mm certified grid

Calibration Studies



Gantry X Reproducibility

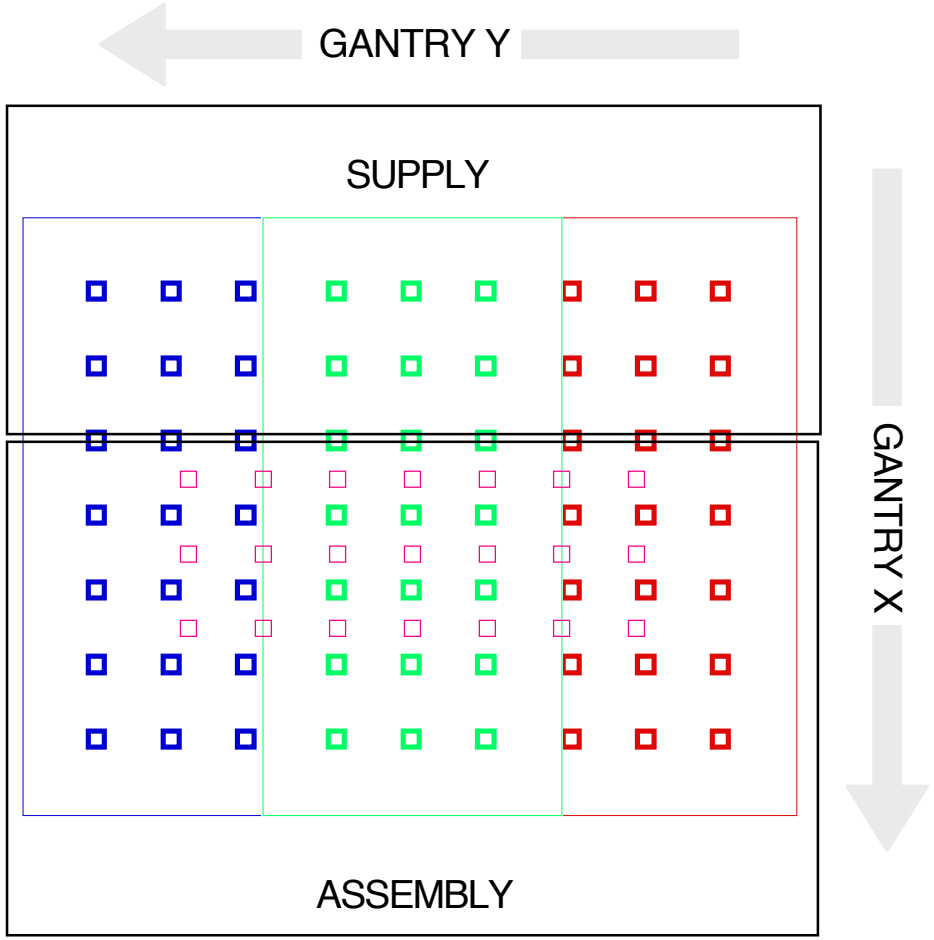


Gantry Y Reproducibility

Some evidence that the optical grid moved during the scans.

Very large temperature swings in Lab A!

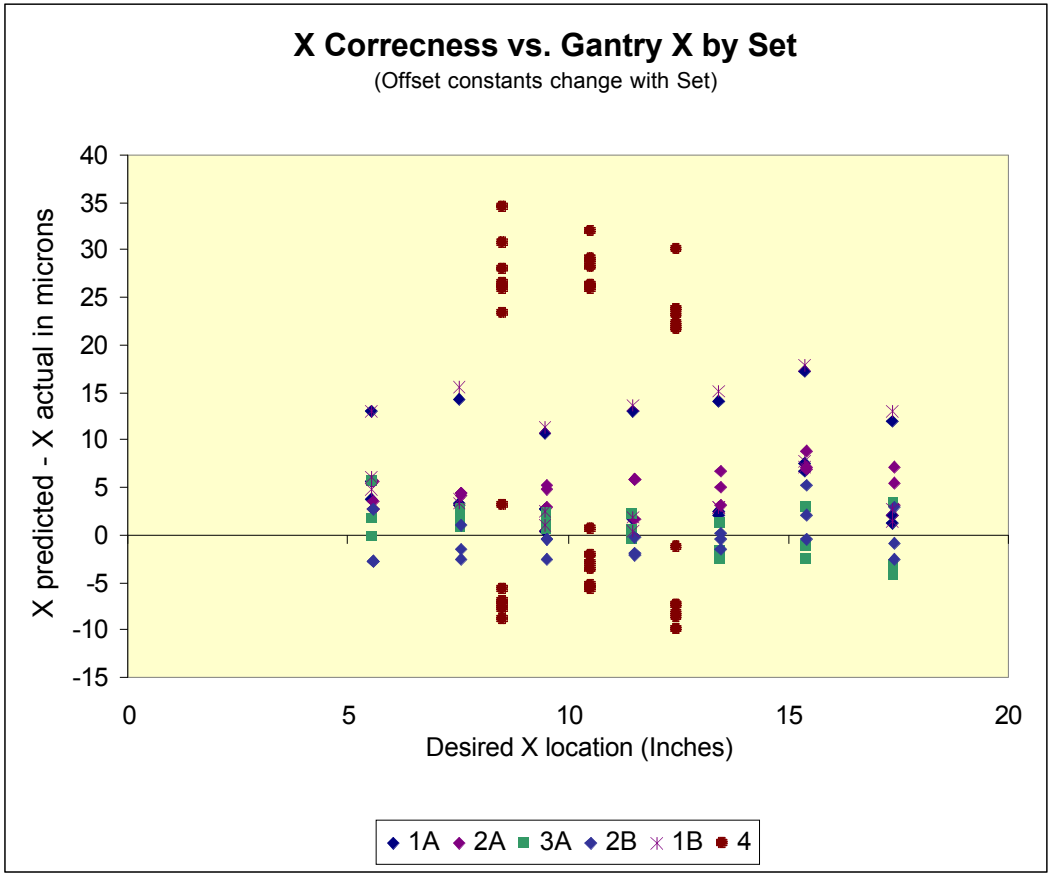
Calibration Studies



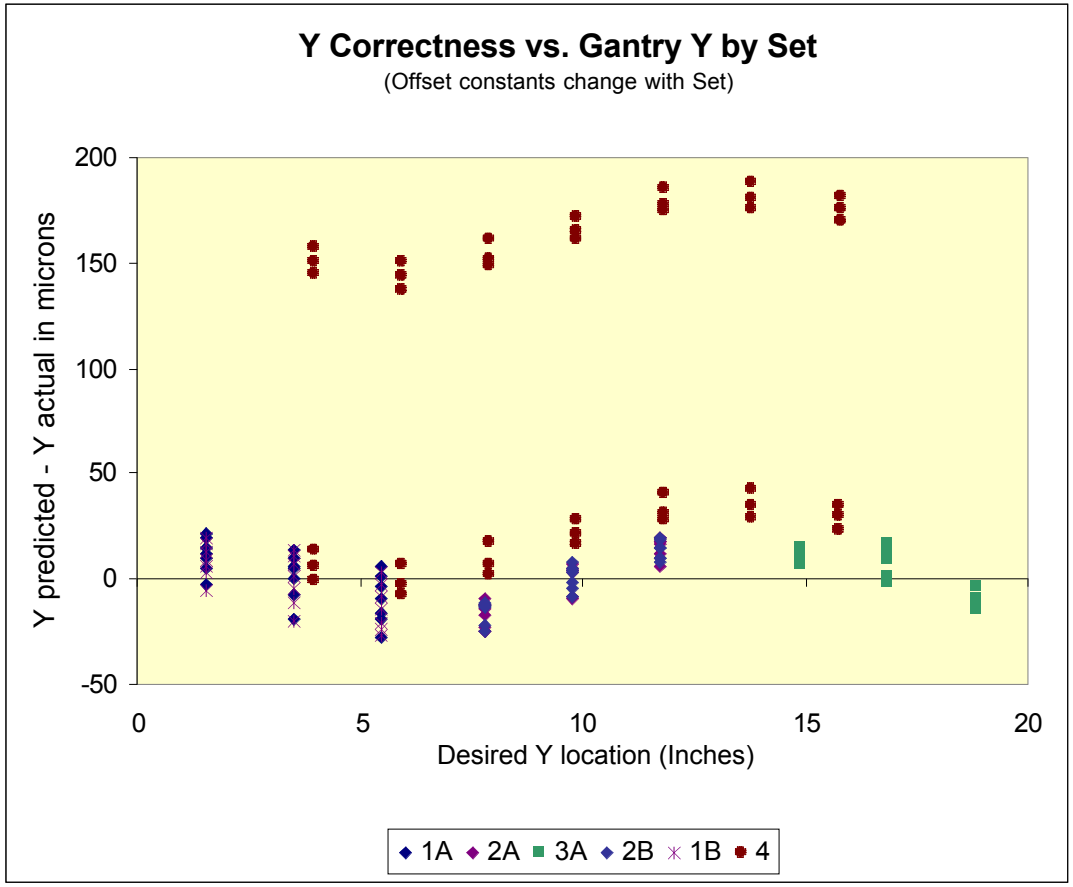
Calibration Studies

The X axis seems to be straight but the Y axis appears to have a large (100m) bow!?

More work is required.



Calibration Studies

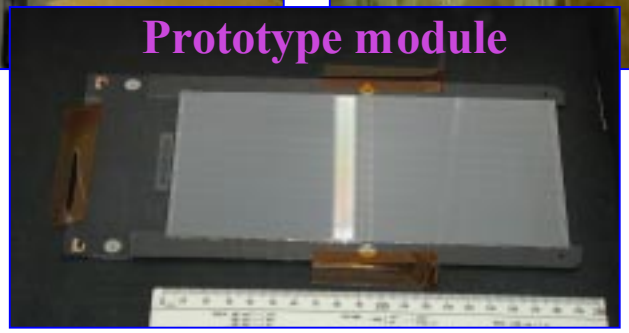


Other Progress

Wire Bonding Facility

Clean Room Area

Prototype module



Other Progress cont.

- **Under Joel Goldstein's direction SiDet bonded two CERN supplied test pieces. These have subsequently been sent to CERN for cross-checking of our pull results.**
- **SiDet has been assisting us in securing samples of the 3 required adhesives for module assembly.**
  - **NE001 silicone glue (or, less preferred, Dow Corning 3145)**
  - **Araldite 2011**
  - **VonRoll Isola E-solder 3025**
- **Bill Kahl will attend a two day gantry software tutorial, which will take place during the upcoming Tracker Week.**
- **The Catania group has been asking for advice on the purchase of a large optical grid, which would be used to calibrate the robots.**
  - **Calibration will take place after the move to the Lab D clean room.**

Changing Production Model and Gantries

- **We retain concerns about the amount of lead time, expertise, and effort required to order, assembly, and fully commission an Aerotech gantry system.**
- **We note that October 2 marked the one year anniversary for the Fermilab unit. That is, the purchase order for the gantry was submitted slightly over a year ago.**
- **Given the concerns with the amount effort necessary to complete a gantry system we worry that by the time it was realized that a second Fermi gantry was required, it would be too late to carry this out.**